

## Claims

1 1. A lithium polymer secondary battery comprising a  
2 positive electrode, a negative electrode, and a polymer electrolyte,  
3 further containing ceramic not relating to charge and discharge  
4 reaction of battery in at least one of positive electrode and  
5 negative electrode.

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1 2. A lithium polymer secondary battery of claim 1,  
2 wherein the ceramic is at least one type selected from the group  
3 consisting of  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{MgO}$ , and  $\text{Na}_2\text{O}$ .

1 3. A lithium polymer secondary battery of claim 1,  
2 wherein the ceramic is granular, and the particle size is 10 microns  
3 or less.

1 4. A lithium polymer secondary battery of claim 1,  
2 wherein the content of the ceramic is 0.01 to 20 parts by weight in  
3 100 parts by weight of the active substance.

1 ~~5. A lithium polymer secondary battery of claim 1,~~  
2 ~~wherein a polymer electrolyte is contained in at least one of the~~  
3 ~~positive electrode and negative electrode.~~

1 6. A lithium polymer secondary battery of claim 1,  
2 wherein the polymer electrolyte is a gel polymer electrolyte  
3 composed of polymer and an organic electrolyte solution dissolving  
4 lithium salt.

1 ~~7. A lithium polymer secondary battery of claim 1,~~  
2 ~~wherein ceramic is contained in the polymer electrolyte.~~

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1 8. A lithium polymer secondary battery of claim 7,  
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2 wherein the ceramic is at least one type selected from the group  
3 consisting of  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{ZrO}_2$ ,  $\text{MgO}$ , and  $\text{Na}_2\text{O}$ .

1 9. A lithium polymer secondary battery of claim 7,  
2 wherein the ceramic is granular, and the particle size is 10 microns  
3 or less.

1 ~~10. A lithium polymer secondary battery of claim 7,~~  
2 ~~wherein a polymer electrolyte is contained in at least one of the~~  
3 ~~positive electrode and negative electrode.~~

1 ~~11. A lithium polymer secondary battery of claim 7,~~  
2 ~~wherein the polymer electrolyte is a gel polymer electrolyte~~  
3 ~~composed of polymer and an organic electrolyte solution dissolving~~  
4 ~~lithium salt.~~

1 12. A lithium polymer secondary battery comprising a  
2 positive electrode and a negative electrode for occluding and  
3 releasing lithium, and a polymer electrolyte wherein the polymer  
4 electrolyte is a gel polymer electrolyte containing  $\text{Al}_2\text{O}_3$  particles  
5 with particle size of 10 microns or less and 80 parts by weight or  
6 less of nonaqueous electrolyte solution, and the negative electrode  
7 is mixed with said gel polymer electrolyte so that  $\text{Al}_2\text{O}_3$  particles  
8 are contained.

1 13. A lithium ion secondary battery mainly comprising  
2 a positive electrode using lithium transition metal compound oxide  
3 as active substance, a negative electrode containing at least one  
4 active substance selected from the group consisting of lithium  
5 occluding and releasing carbon, metal oxide and polymer, and an  
6 organic electrolyte solution, wherein the negative electrode  
7 contains ceramic not relating to charge and discharge reaction of

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ion secondary  
anular with pa

ion secondary  
 $\text{Fe}_2\text{O}_3$  particles,  
 parts by weight

Add  $C_1$

Add  $K'$

Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	